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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,747	02/03/2004	Choung-Ku Chon	4591-354	3655

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EXAMINER	
ZERVIGON, RUDY	
ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/771,747	CHON ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,24 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,24 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "temperature controller" must be shown or the feature canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-10, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell; Bryant A. et al. (US 4547404 A) in view of Katayama; Katsuo et al. (US 5529632 A). Campbell teaches a diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) for use in fabricating semiconductor devices, the furnace comprising: a support member (42; Figure 2; column 4, line 55 - column 5, line 29); a process chamber (4; Figure 1,2; column 4, line 55 - column 5, line 29) installed on the support member (42; Figure 2; column 4, line 55 - column 5, line 29); a sealing member (50; Figure 2) for sealing the process chamber (4; Figure 1,2; column 4, line 55 - column 5, line 29) from the outside, the sealing member (50; Figure 2) being inserted between the support member (42; Figure 2; column 4, line 55 - column 5, line 29) and the process chamber (4; Figure 1,2; column 4, line 55 - column 5, line 29); and a cooling system (62, 64; Figure 2; column 4, line 55 - column 5, line 29) for cooling the sealing member (50; Figure 2), the cooling system (62, 64; Figure 2; column 4, line 55 - column 5, line 29) including a first fluid passage (64; Figure 2) in which a first fluid flows for cooling the sealing member (50; Figure 2), the first fluid passage (64; Figure 2) being formed within the support member (42; Figure 2; column 4, line 55 - column 5, line 29)

Campbell further teaches:

i. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the sealing member (50; Figure 2) is an O-ring, as claimed by claim 3

ii. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the first fluid passages are substantially ring-shaped - claim 4

Campbell does not teach that an additional second fluid passage in which a second fluid flows for cooling the sealing member (50; Figure 2) when supplying the first fluid is interrupted, the

second fluid passage being formed within the support member (42; Figure 2; column 4, line 55 - column 5, line 29).

Campbell further does not teach:

i. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein Campbell's cooling system (62, 64; Figure 2; column 4, line 55 - column 5, line 29) includes: Campbell's first supply conduit (62; Figure 2; column 4, line 55 - column 5, line 29) connected to Campbell's first inflow port (62/64 interface; Figure 2; column 4, line 55 - column 5, line 29) formed at one end of Campbell's first fluid passage (64; Figure 2); a return conduit connected to a first outflow port formed at the other end of Campbell's first fluid passage (64; Figure 2); a temperature controller, to which the first supply conduit (62; Figure 2; column 4, line 55 - column 5, line 29) and the return conduit are connected, for controlling the temperature of the first fluid supplied to the first supply conduit (62; Figure 2; column 4, line 55 - column 5, line 29); a second supply conduit connected to a second inflow port formed at one end of the second fluid passage; and an exhaust conduit connected to a second outflow port formed at the other end of the second fluid passage, as claimed by claim 2

ii. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 4, wherein the second fluid passage is formed substantially coplanar with Campbell's first fluid passage (64; Figure 2), as claimed by claim 5

iii. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 4, wherein Campbell's first fluid passage (64; Figure 2) and the second fluid passage are disposed one over the other, as claimed by claim 6

iv. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the first fluid has a higher boiling point than the second fluid, as claimed by claim 7 – However, applicant's claim requirement is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

v. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the second fluid is cooling water, as claimed by claim 8. However, applicant's claim requirement is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

vi. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the first fluid is an organic liquid, as claimed by claim 9. However, applicant's claim

requirement is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

vii. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the first fluid is ethylene glycol, as claimed by claim 10. However, applicant's claim requirement is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

viii. The diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim l, wherein the second fluid flows in the second fluid passage when an error occurs at the temperature controller, as claimed by claim 24

ix. The diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 24, wherein the second fluid flows in the second fluid passage in response to an electrical control signal, as claimed by claim 25

Katayama teaches a coolant circuit (11a, 12, 12a; Figure 1) including a temperature controller (21c,b; Figure 1) for controlling reactor skin temperature (column 5, line 52 – column 6, line 4). Katayama further teaches that his controller (21c,b; Figure 1) can act on a predetermined electrical control signal (temperature), where Katayama's "error" is represented as a difference between a "predetermined temperature" and a process temperature:

"

The heating medium set to have a predetermined temperature by the temperature controller 21b is circulated in the flow path 12 at a given flow rate.

" (column 6; lines 55-65)

It would have been obvious to one of ordinary skill in the arta at the time the invention was made to add plural cooling conduits to Campbell's support member (42; Figure 2; column 4, line 55 - column 5, line 29) and for Campbell to add Katayama's temperature controller (21c,b; Figure 1) to Campbell's apparatus.

Motivation to add plural cooling conduits to Campbell's support member (42; Figure 2; column 4, line 55 - column 5, line 29) is to enhance cooling as taught by Campbell's additional second fluid passage (68; Figure 2) and for Campbell to add Katayama's temperature controller (21c,b; Figure 1) to Campbell's apparatus is for controlling depositions on chamber surfaces as taught by Katayama (column 7; lines 49-65).

Response to Arguments

4. Applicant's arguments filed February 23, 2006 have been fully considered but they are not persuasive.

5. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Examiner has provided evidence for his proposed combination that demonstrates teaching, suggestion, and motivation to combine the references found in the references themselves and in the knowledge generally available to one of ordinary skill in the art. In particular, the Examiner cited that motivation to add plural cooling conduits to Campbell's support member (42; Figure 2; column 4, line 55 - column 5, line 29) is to enhance cooling as taught by Campbell's additional second fluid passage (68; Figure 2). Motivation for Campbell to add Katayama's temperature controller (21c,b; Figure 1) to Campbell's apparatus is for controlling depositions on chamber surfaces as taught by Katayama (column 7; lines 49-65).

6. In response to applicant's argument that "...the second fluid passage is being used as a backup system for providing cooling fluid in the event that the supply of first cooling fluid is interrupted so as to protect the sealing member.", the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be

the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Conclusion

7. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.